Thermal-aware job scheduling in data centers

van Damme, Tobias

Stellingen behorende bij het proefschrift

Thermal-aware job scheduling in data centers An optimization approach

door Tobias Van Damme

1. A static mapping for recirculation flows is a good choice in order to capture thermal leakages and construct a thermodynamical model of a data center. (Chapter 2)

2. Integral controllers are sufficient for implementing thermal-aware job schedulers in current-day air cooled data centers. (Chapter 3)

3. Combining projected dynamical systems with integral controllers for thermal-aware job scheduling allows for maximizing the computing potential while safely operating data centers. (Chapter 4)

4. When a PhD student has the choice between going home at the end of the day, or working a few hours extra, the more productive choice is almost always to go home.

5. Combining multiple energy reduction techniques into a multi-purpose controller yields the best results. (Chapter 5)

6. By running easy-to-design experiments and using subspace identification algorithms, it is possible to reconstruct the thermodynamical structure of any data center. (Chapter 6)

7. Theoretical analyses are necessary in a predominantly heuristic based field in order to get a better understanding of the characteristics of good solutions.

8. Having lunch or eating pie is a vital part in sowing seeds of collaboration among colleagues.